



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,348	06/23/2006	Hajime Suzuki	L7016.06102	3347

24257 7590 12/03/2008

Dickinson Wright PLLC
James E. Ledbetter, Esq.
International Square
1875 Eye Street, NW., Suite 1200
WASHINGTON, DC 20006

EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
----------	--------------

1795

MAIL DATE	DELIVERY MODE
-----------	---------------

12/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/584,348	Applicant(s) SUZUKI ET AL.	
	Examiner Christopher RoDee	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/23/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Sole independent claim 1 is indefinite because there is not clear antecedent basis for "the conductive layer" at line 3. Claim 5 is indefinite because it is unclear if the polyimide is the same polyimide as now referenced in amended claim 1. Claims 7-14 are indefinite as presented because it is unclear what components are present in the apparatus. The use of the "applied to the photoreceptor" in each appears to reference a process step, but an apparatus is defined by its structure not by the manner in which it is used. The claims as presented make it unclear if the apparatus claims include in one embodiment the photoreceptor and the contact charging means (claims 7 and 9-11) and in another embodiment the photoreceptor and semiconductor laser exposing means (claims 8 and 12-14). Clarification is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-196519 or JP 2003-043715 each in view of JP 08-030007. Machine translations of each of these documents are provided with this Office action.

Both primary Japanese documents disclose photoreceptors comprising a conductive support, an underlayer, a charge generation layer, and a charge transport layer ('519: Abstract, ¶¶ [0018] – [0027]); '715: Abstract, ¶¶ [0010] – [0017]). The charge transport layer in '715 contains a butadiene compound of the Formulae 4 and/or 5 (¶ [0025]). A particularly preferred compound of Formula 4 is that of the Formula 8 (¶ [0027]). Particularly preferred compounds of the Formula 5 are compounds of the Formula 9-12. Also in the '715 document, the underlayer comprises a polyamide (¶ [0017]) and has a thickness of 0.8 μm (¶ [0034]). In the '715 document, the photoreceptor is placed in an imaging apparatus that has a charging means and a laser beam exposure means (¶ [0043]). Similarly in the '519 document, the charge transport layer contains compounds of the Formulae 21 and/or 21 (¶¶ [0036] – [0040]) with compounds of the Formulae 25-27 preferred (¶¶ [0044] – [0046]). Also in the '715 document, the underlayer comprises a polyamide (¶ [0027]) with an exemplified thickness of 1.0 μm (¶ [0052]).

Neither primary reference discloses the polyimide underlayer of the instant claims, but the supporting JP '007 document discloses a photoreceptor having a conductive support, a polyimide-containing underlayer, a charge generating layer, and a charge transporting layer (¶

Art Unit: 1795

[0005]). The undercoat layer acts as a charge blocking layer and has improved deposition properties (¶¶ [0007], [0020], [0023], & [0043]). Exemplified polyimides useful in the charge blocking layer include those of the formulae (I-1), (I-2), (I-3), and (I-4) (¶ [0010]). The polyimide can be combined with other materials, such as a titanium oxide (¶ [0022]). An exemplified under layer has a thickness of 0.5 μm (¶ [0037]). The photoreceptor of the JP '007 document is placed in a laser printer having a charging device and a exposure source (¶ [0038]). A contact charging device is disclosed as useful. The '007 document compares itself to polyamide containing photoreceptors (e.g., Nylons) and shows better results (¶ [0041]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the polyimide polymers of JP '007 in the undercoat layer of the primary documents because the primary documents desire an undercoat layer in the photoreceptor and discuss polyamides as a possible undercoat polymer while the supporting JP '007 document shows that polyimide underlayers have better coating ability, environmental stability, and durability. A clear advantage is disclosed for this polyimide material in a photoreceptor underlayer. The benefits are predictable for the artisan because the references are all directed to photoreceptors from the same field of endeavour and have similar structures. The artisan would have found it obvious to optimize the amounts of materials in the underlayer in order to form an effective charge blocking layer.

Claims 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-196519 or JP 2003-043715 each in view of JP 08-030007 as applied to claims 1, 3, 4, and 6 above, and further in view of *Handbook of Imaging Materials*, to Diamond, pp. 145-164.

The JP documents were discussed above. The primary documents do not disclose contact charging, but the supporting document does disclose contact charging. The Diamond

Art Unit: 1795

text further discusses the benefits of using contact charging in an imaging apparatus in that it provides the charge directly to the surface of the photoreceptor (pp. 150-151) and has less chance of inducing image blur as compared to scorotron charging.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use contact charging to charge the surface of the photoreceptor in either primary JP document because the supporting JP document shows that these devices are known and the Diamond teaches better charging application and less image distortion with the contact charger.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-196519 or JP 2003-043715 each in view of JP 08-030007 as applied to claims 1, 3, 4, and 6 above, and further in view of Nakamura *et al.* in US Patent 2003/0118927.

The JP documents were discussed above. The primary documents do not disclose the use of a semiconductor laser for exposure, but do disclose the requirements for an exposure source. Nakamura discloses semiconductor laser sources as effective exposure sources for imaging apparatus (¶¶ [0111], [0312], [0355]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a known imaging source to produce an image on the surface of the primary documents' photoreceptors because each primary reference requires an imaging source and the supporting US document shows that semiconductor imaging sources are well known in the art. The use of a known component for its known function when that function is called for by the art would have been *prima facie* obvious. The result would also have been predictable because the light source would function as called for and described by the art.

Art Unit: 1795

Allowable Subject Matter

Claims 5, 8, and 14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on Monday to Thursday from 5:30 to 4:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher RoDee/
Primary Examiner
Art Unit 1795

4 December 2008